EHR Cardiac Measures Report Guide

A Guide for Measuring and Improving Cardiac Measures in an Electronic Health Record

HealthInsight Utah

UTAH DEPARTMENT OF HEALTH

Healthy Living Through Environment Policy and Improved Clinical Care (EPICC)

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SECTION 1: GENERAL INSTRUCTIONS AND BACKGROUND

The purpose of this guide is to help health care providers and office managers use their electronic health record (EHR) data to identify processes to improve the delivery of health care. Specifically, this guide will focus on identifying quality reporting functions within an EHR that support the delivery of health care for patients diagnosed with diabetes, hypertension, hypercholesterolemia, those in need of antiplatelet therapy, and/or those who smoke, all of which are risk factors for heart attack and stroke[1]. The treatment of four of these conditions creates the ABCS of preventing heart attack and stroke. The clinical interventions of the ABCS are as follows: (A) an aspirin for those who need it; (B) blood pressure control; (C) cholesterol management; and quitting (S) smoking. A fifth condition, diabetes, contributes to the incidence of heart attack and stroke and should be monitored closely.

Facts and Background Information on Cardiovascular Disease and Stroke:

- Heart attack and stroke are two of the leading causes of death and disability in the United States, making cardiovascular disease a contributing factor in 1 of every 3 deaths in the country.
- Together, heart attack and stroke are among the most widespread and costly health problems facing the United States, accounting for $444 billion in health care expenditures and lost productivity in 2010 alone.
- Each year, more than 2 million Americans experience a heart attack or stroke.
- In 2010, coronary heart disease (CHD) claimed the lives of 1,408 Utahns.
- In 2009, adult Utah residents experienced 2,797 hospitalizations for stroke, which remains the third leading cause of death for adults in Utah.
- Diabetes increases the risk of heart attack and stroke by 2 to 4 times and is the leading cause of blindness among adults ages 25-74.
- Heart attack and stroke are the leading causes of disparities in life expectancy among different races and ethnicities.
- Most heart attacks and strokes can be prevented with simple, low-cost care and behavior or lifestyle changes.

[1] See Appendix A for definitions

SECTION 2: CREATING REPORTS AND EHR–SPECIFIC EXAMPLES

All major EHR systems have a reporting system. Some are complex and training is needed to learn their reports (e.g., Crystal Reports). Most have simple reports that can be run for improvement efforts. This guide is focused on the simple reports. The availability of built-in reports has increased because of federal reporting programs such as Meaningful Use (MU) and the Physician Quality Reporting System (PQRS). This section has two parts: 1) Instructions and screen shots on Pulling Reports from your EHR system, and 2) what Cardiac, Diabetes and Blood Pressure Measures to look for in the EHR. The two parts should be used together to successfully create reports.

Pulling Reports

In Utah, there are various places where MU, PQRS, and other reports can be pulled or obtained. Larger organizations, including Intermountain Healthcare, centralize their quality measures reporting. Clinics and providers in the Intermountain Healthcare system can get reports from internal dashboards and eReports, or from reports generated by SelectHealth that are sent to providers on a routine basis. Some quality measures for Intermountain clinics are now publicly available online by going to the SelectHealth website, searching for a provider or clinic, and then clicking on "Satisfaction and Performance Ratings." In addition, SelectHealth and other payers may offer quality feedback reports to providers based upon the claims the payer receives. The University of Utah system also centralizes its reports with support from its IT and quality departments. Other midsized systems such as Central Utah Clinic, Tanner Clinics, and Ogden Clinics offer similar support.

This infrastructure is not seen in small clinics, but new EHR technology allows these entities to pull the same or similar reports as their larger integrated counterparts. eClinicalWorks, Greenway, and e-MDs are examples of EHR systems commonly used by independent clinic groups in Utah. Screen shots of where to find their reporting modules are given below. There are many other EHR systems used in Utah and similar functionality should be available in these systems. Remember to use the "Diabetes and ABCS Measures" section of this guide to choose which measures to examine.

eClinicalWorks Example

eClinicalWorks (eCW) has three options for quality reporting. First, there is a web interface dashboard where many prebuilt reports can be found, including their MU reports. Second, eCW has some prebuilt reports within the EHR. Finally, eCW has an internal registry module where reports can be custom built. The Web dashboard and the prebuilt reports are the easiest to use. An IT. savvy user can figure out the custom built reports module, but some training may be needed to make it work optimally (See appendix D).

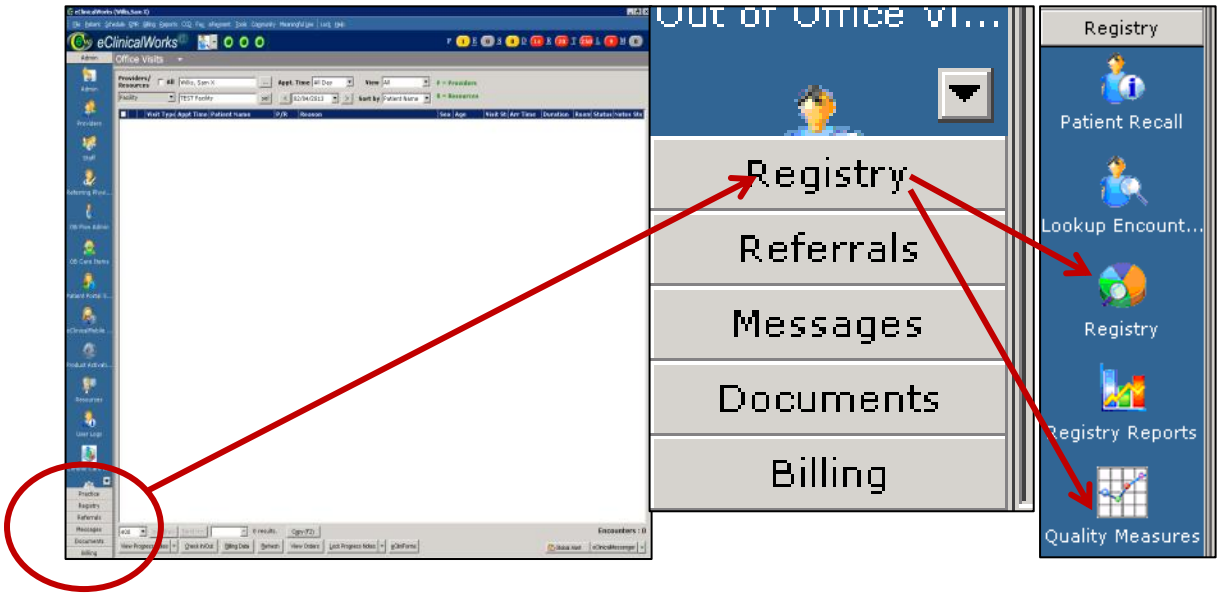
Option 1: Web-based Dashboard: eCW calls its web-based dashboard the MAQ (eCW **M**eaningful Use, **A**doption, and **Q**uality Dashboards). For users of eCW, the dashboard can be found at https://my.eclinicalworks.com. See eCW Screen Shot 1. Once in the MAQ, the user can look for Clinical Quality Measures (CQMs) where cardiac measures can be found. There is some limited ability to change some criteria on the report.

eCW Screen Shot 1 – MAQ Dashboard example

Options 2 and 3: Built-in Reports: The reporting module is found on the left hand side of the startup screen (eCW Screen Shot 2) under "Registry."

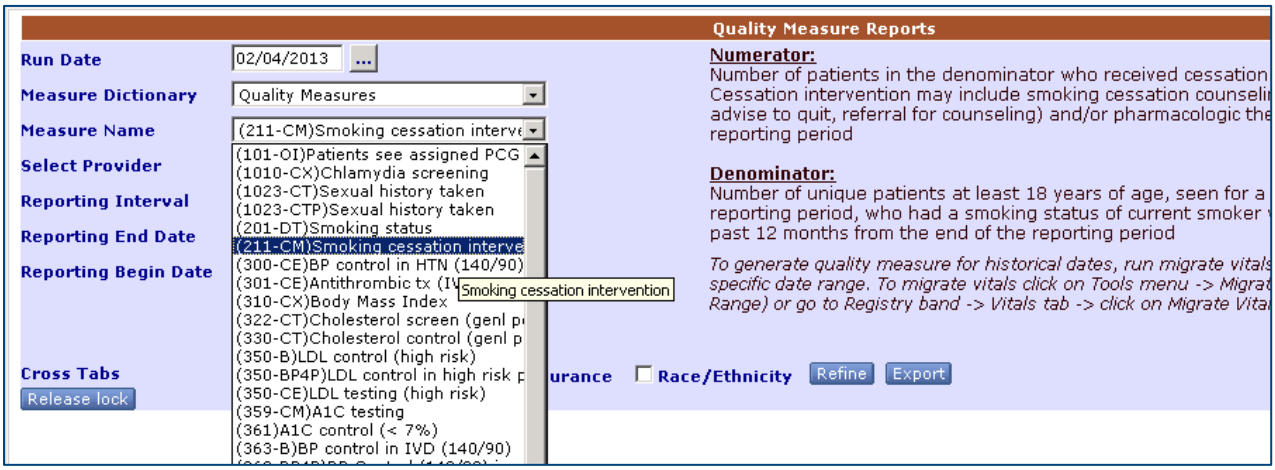
eCW Screen Shot 2 – Main Page – "Registry" on Left Column

The "Registry" tab will bring up various options on the left side. The two of interest are "Quality Measures," which has the prebuilt reports, and "Registry Icon," where custom-built reports can be generated. The "Quality Measures" page (eCW Screen Shot 2) gives the user the option to



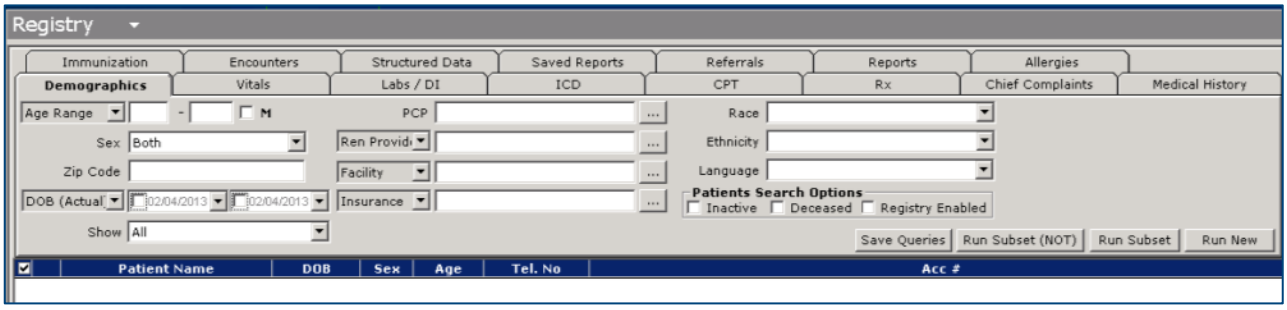
select a measure, provider, and time frame and run the report. This is a simple way to get reports from eCW.

eCW Screen Shot 3 – "Quality Measures Reports" Page



The "Registry" icon brings up a set of customizable fields where various criteria can be used to create reports. This module takes considerable understanding of your system and may require training. However, this is a powerful way to create very specific queries from scratch and the time invested in training or understanding this method is time well spent. See eCW Screen Shot 4. Additional instructions for the registry are given in Appendix D.

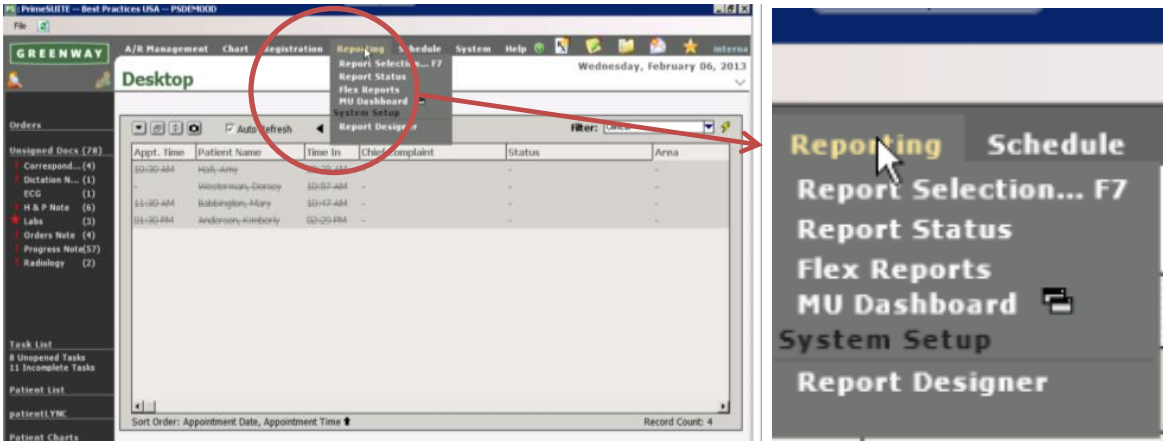
eCW Screen Shot 4 – "Registry" Icon – Custom Reports Built in This Module



Greenway Example

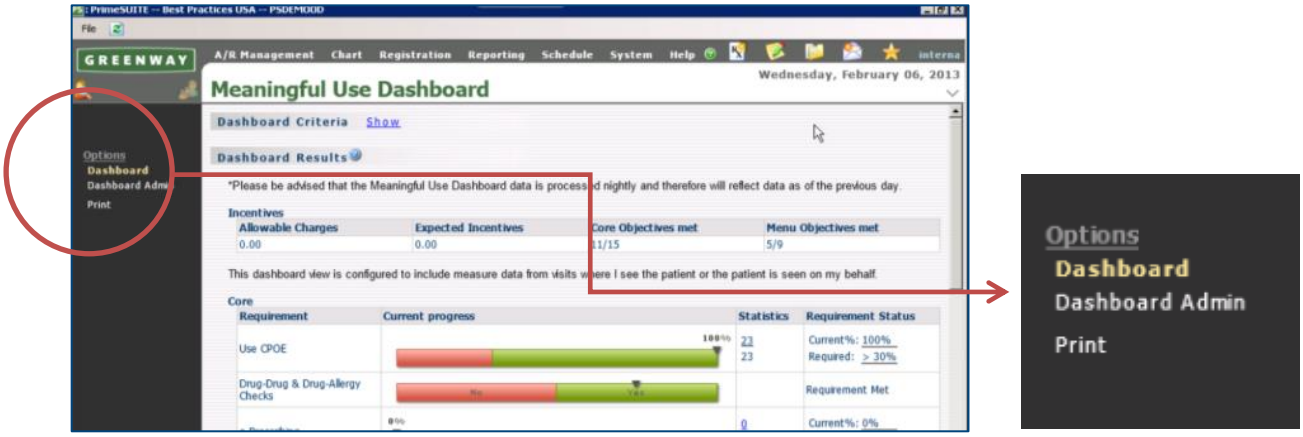
The Greenway EHR has two options for quality reporting. The most readily accessible way is through the MU Dashboard. At the top of the main page is their "Reporting" option. See Greenway Screen Shot 1.

Greenway Screen Shot 1 – Main Page – Reporting Drop Down at Top Center

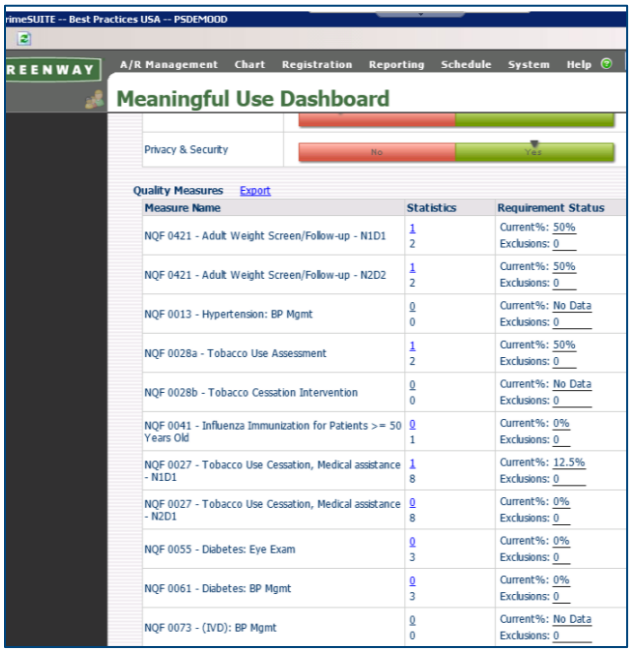


The MU Dashboard (See Greenway Screen Shot 2) shows indicators relevant to MU, including both the core and menu set measures. In the middle of the MU dashboard there is a section on Quality Measures (See Greenway Screen Shot 3). These Quality Measures can be added and deleted through the "Dashboard Admin" on the left side. Many of the cardiac measures are not included in the MU dashboard by default and must be added in the "Dashboard Admin" area. In practice, we have found that after the "Dashboard Admin" has been updated, it takes a day for the reports to reflect the changes. These reports are often run at the end of the day so they will be ready for review the next day.

Greenway Screen Shot 2 – Meaningful Use Dashboard



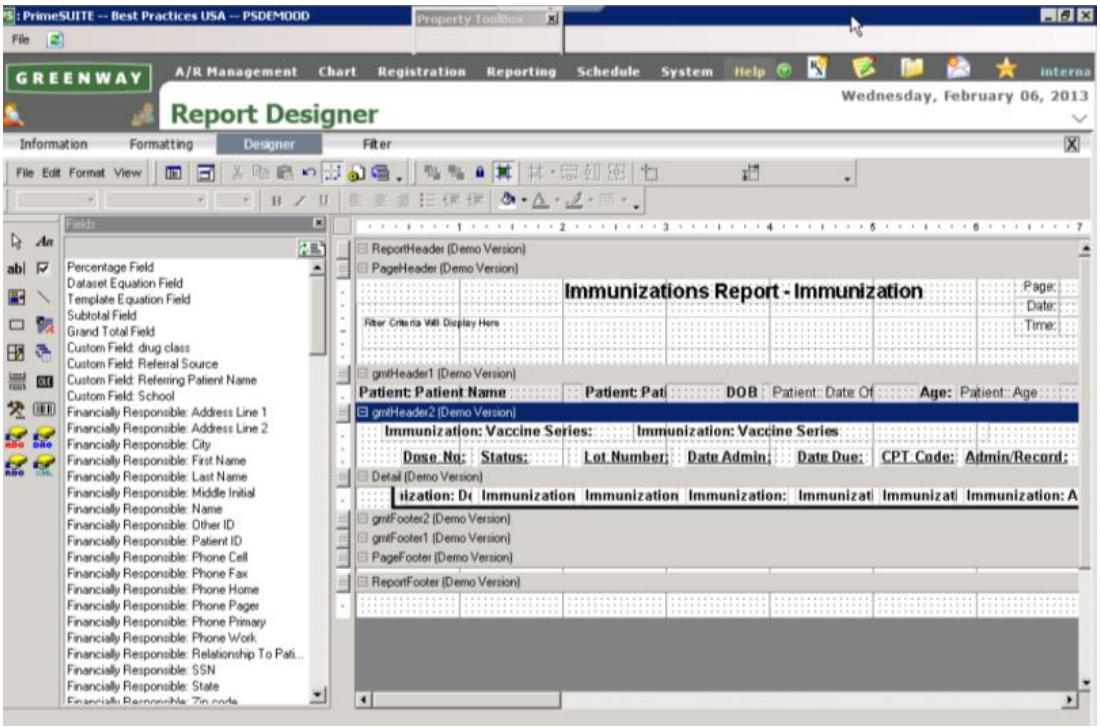
Greenway Screen Shot 3 – Quality Measures



The Greenway Screen Shot 3 – Quality Measures on the MU Dashboard do not include data from the entire patient population; thus, the numbers are small. But it does give an idea of how this report looks.

Greenway also has a way to custom build reports with their "Report Designer." (See Greenway Screen Shot 4). This takes some savvy or training. There is a good import function in Greenway and, if a report is found from Greenway or elsewhere, it can be imported and used in Greenway. The vendor representative for Greenway can explain the process.

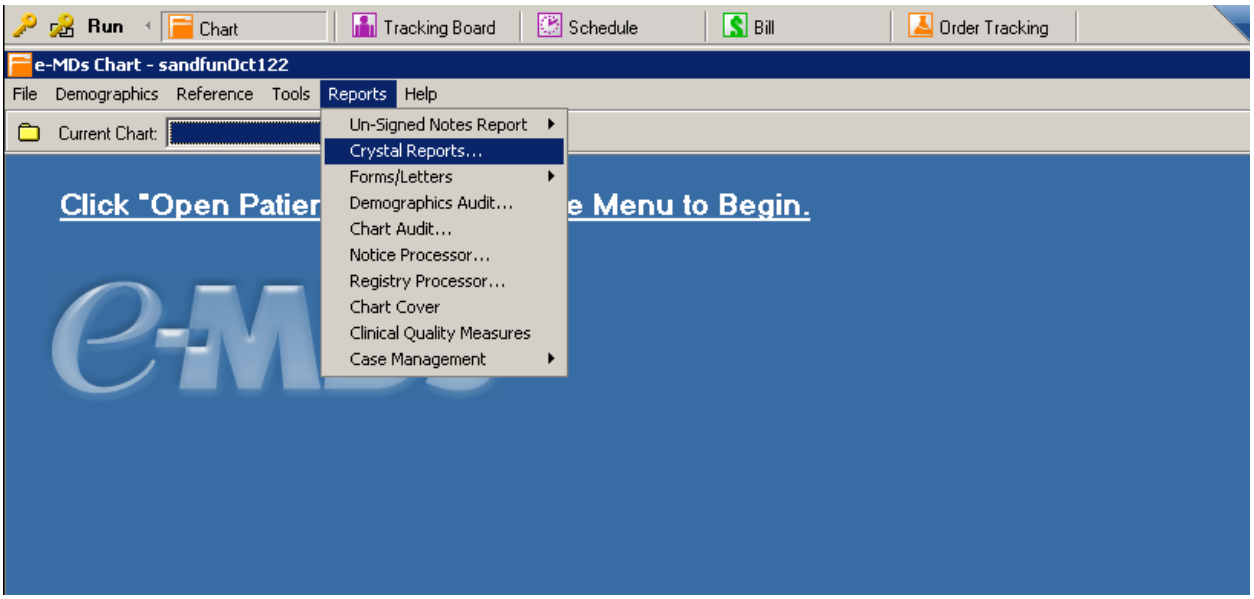
Greenway Screen Shot 4 – Report Designer



e-MDs Example

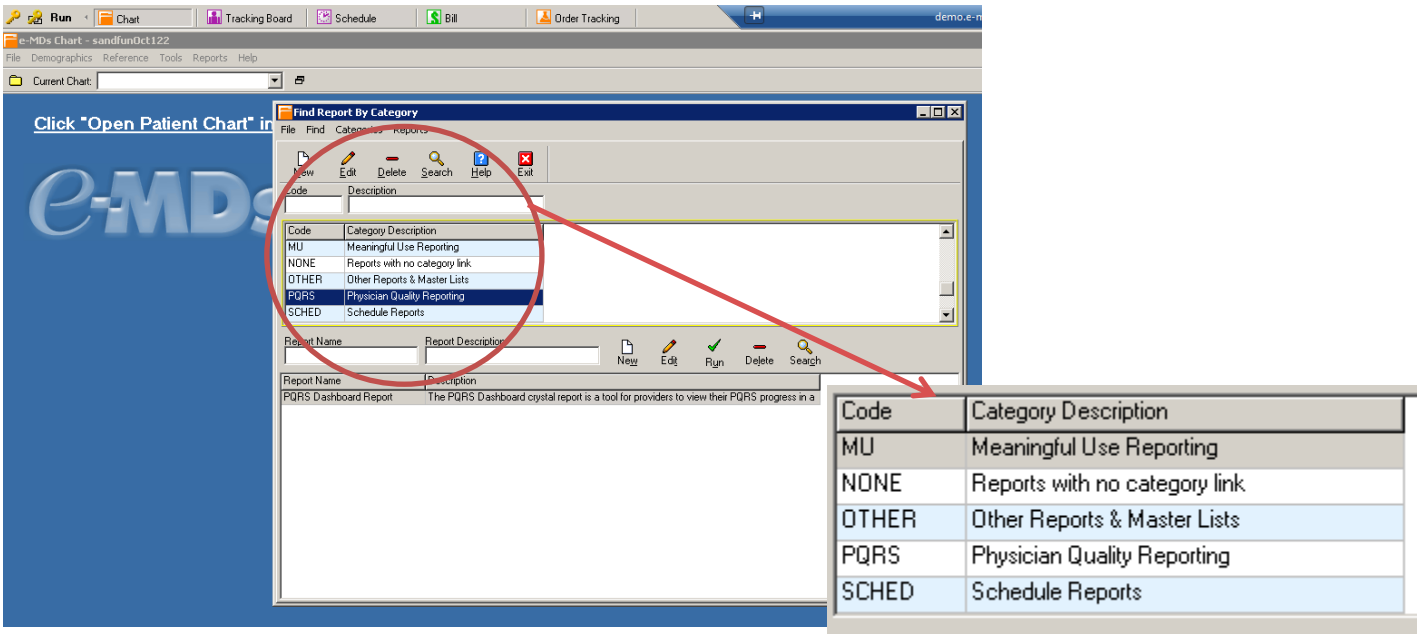
e-MDs has quality reporting functionality built into its EHR. Most reports are accessed through the "Crystal Reports" option from the "Reports" menu. See image below.

e-MDs Screen Shot 5 – Reports – Crystal Reports



The next screen is where the user will choose which reports to run. While one can search for a measure by name, e-MDs also has a series of prepopulated quality reports.

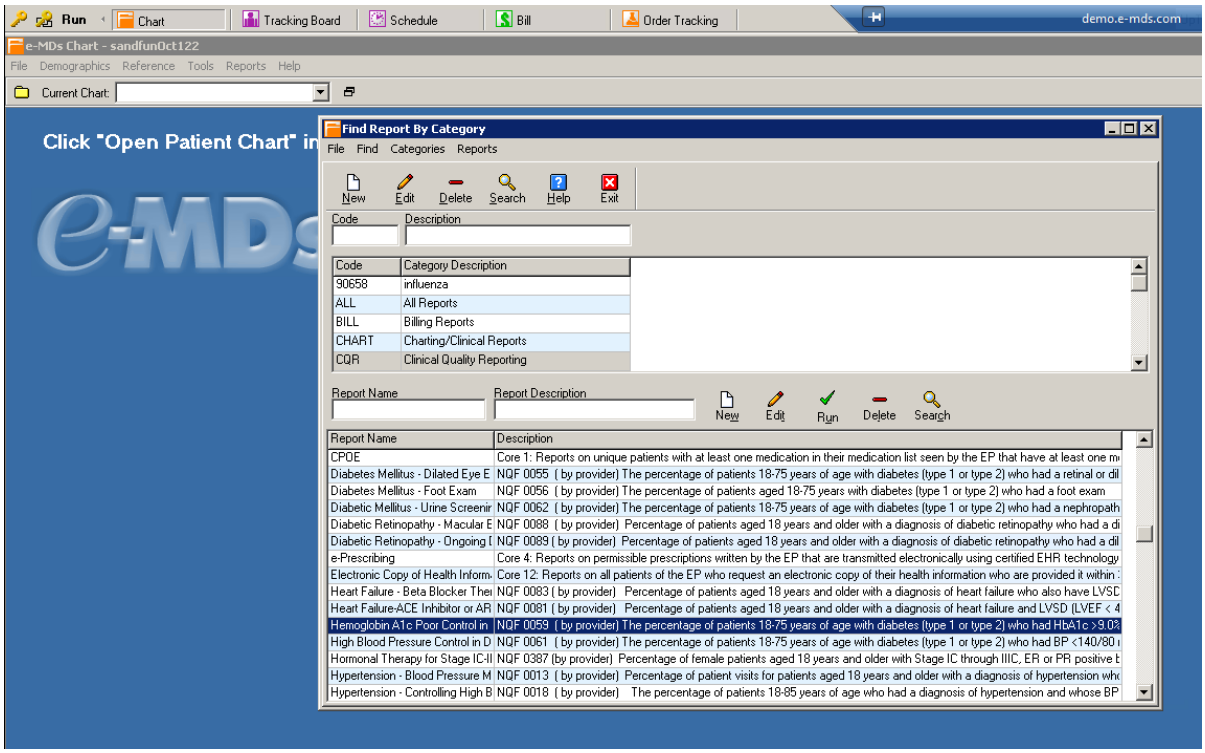
e-MDs Screen Shot 2 – Crystal Reports Measure Selection



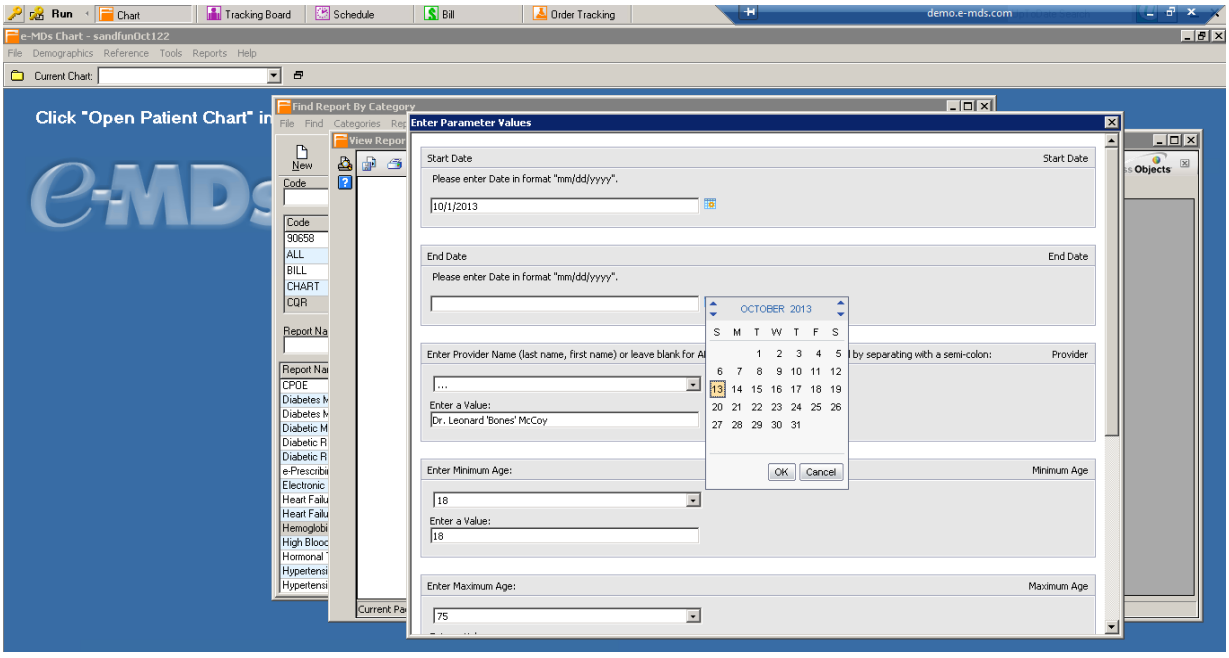
For example, you can see the grouping for PQRS measures along with the MU measures.

Once you find the measure, you simply select the measure (Screen Shot 3), input the time frame and the provider(s), and press OK to run the report (Screen Shot 4). In this example, we are looking at NQF 0059 Hemoglobin A1c Poor Control.

e–MDs Screen Shot 3 – Crystal Reports Measure Selection (continued)



e-MDs Screen Shot 4 – Enter the Date Range and the Provider(s) Name



Note that you must have permission indicated for each provider before you can run any reports. That is done with the edit button seen on e-MDs Screen Shot 2.

If you have any questions about how to operate the reporting functions through e-MDs, please contact the technical support line at 800-565-5564 or through the Internet at http://www.e-mds.com/support/support-center.

ABCS Measures and Diabetes – Which report to run in our EHR?

The following is a list of preferred measures and acceptable alternative measures based on the five conditions for clinical intervention using the ABCS. Certified EHRs systems will have built many of these reports into their systems. The list consists of federally-sanctioned measures, including those for MU and PQRS. All EHRs certified by the Office of the National Coordinator (ONC) will be able to provide the user with prebuilt MU reports. Prebuilt MU or PQRS reports are simpler to use. Many systems also have custom reporting options.

Comprehensive Diabetes Care: Hemoglobin A1c – Percentage of members 18-75 years of age with diabetes (type 1 and type 2) whose most recent HbA1c level during the measurement year was greater than 9.0% (poor control) or was missing a result, or if an HbA1c test was not done during the measurement year.

Preferred measures:

- MU CQM/PQRS Claims/Registry 2012 NQF #0059 – Hemoglobin A1c (HbA1c) Poor Control (9.0%)
- PQRS Claims/Registry 2012 – NQF #0575 Hemoglobin A1c (HbA1c) control (<8.0%)

Acceptable alternative measures:

- MU CQM/NQF #0060 – Hemoglobin A1c (HbA1c) Testing for Pediatric Patients
- NQF #0057 – Comprehensive Diabetes Care: Hemoglobin A1c (HbA1c) testing
- NQF #0630 – Diabetes and Elevated HbA1C – Use of Diabetes Medications

Blood Pressure Control – Percentage of patients with a diagnosis of coronary artery disease, hypertension, or peripheral vascular disease whose most recent blood pressure during the measurement year is <140/90 mm Hg.

Preferred measures:

- MU Alternate Core/PQRS /NQF #0018 – Controlling High Blood Pressure
- PQRS Claims/Registry 2012 #201 – Ischemic Vascular Disease (IVD): Blood Pressure Management Control
- PQRS EHR 2012 #201 – Ischemic Vascular Disease (IVD): Blood Pressure Management Control

Acceptable alternative measures:

- MU Alternate Core/NQF #0073 – Ischemic Vascular Disease (IVD): Blood Pressure Management

- MU Alternate Core/NQF #0061 – Diabetes: Blood Pressure Management
- PQRS Claims/Registry 2012 #3 – Diabetes Mellitus: High Blood Pressure Control in Diabetes Mellitus
- PQRS Claims/Registry 2012 #244 – Hypertension: Blood Pressure Management
- PQRS EHR 2012 #3 – Diabetes Mellitus: High Blood Pressure Control in Diabetes Mellitus
- PQRS EHR 2012 #236 – Hypertension (HTN): Controlling High Blood Pressure

Lipids Management – Percentage of patients with a diagnosis of ischemic vascular disease whose most recent LDL-C screening had a result of <100.

Preferred measures:

- MU Alternate Core/NQF #0075 – Ischemic Vascular Disease (IVD): Complete Lipid Panel and LDL Control
- PQRS Claims/Registry 2012 #241 – Ischemic Vascular Disease (IVD): Complete Lipid Panel and Low Density Lipoprotein (LDL-C) Control
- PQRS EHR 2012 – #241 – Ischemic Vascular Disease (IVD): Complete Lipid Panel and Low Density Lipoprotein (LDL-C) Control

Acceptable alternative measures:

- MU Alternate Core/NQF #0064 – Diabetes: Low Density Lipoprotein (LDL) Management and Control
- PQRS Claims/Registry 2012 #197 – Coronary Artery Disease (CAD): Lipid Control
- PQRS Claims/Registry 2012 #2 – Diabetes Mellitus: Low Density Lipoprotein (LDL-C) Control in Diabetes Mellitus

Aspirin – Percentage of patients with a diagnosis of ischemic vascular disease who have documentation of use of aspirin or other antithrombotic during the 12–month measurement period.

Preferred measures:

- MU Alternate Core/NQF #0068 – Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antithrombotic
- PQRS Claims/Registry 2012 #204 – Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antithrombotic
- PQRS EHR 2012 #204 – Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antithrombotic

Acceptable alternative measures:

- MU Alternate Core/NQF #0067 – Coronary Artery Disease (CAD): Oral Antiplatelet Therapy Prescribed for Patients with CAD
- PQRS Claims/Registry 2012 #6 – Coronary Artery Disease (CAD): Antiplatelet Therapy
- PQRS EHR 2012 #6 – Coronary Artery Disease (CAD): Antiplatelet Therapy

Smoking – Percentage of patients who receive smoking cessation counseling.

Preferred measures:

- MU Core/NQF 0028b – Preventive Care and Screening Measure Pair: Tobacco Cessation Intervention
- PQRS Claims/Registry 2012 #226 – Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention
- PQRS EHR 2012 #226 – Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention

Acceptable alternative measures:

- MU Alternate Core/NQF #0027 – Smoking and Tobacco Use Cessation, Medical assistance: a. Advising Smokers and Tobacco Users to Quit, b. Discussing Smoking and Tobacco Use Cessation Medications

Discussing Smoking and Tobacco Use Cessation Strategies.

- PQRS EHR 2012 #308 – Smoking and Tobacco Use Cessation, Medical Assistance: a. Advising Smokers and Tobacco Users to Quit, b. Discussing Smoking and Tobacco Use Cessation Medications, c. Discussing Smoking and Tobacco Use Cessation Strategies

SECTION 3: IMPROVEMENT TECHNIQUES

Quality improvement is the purposeful change of a process to improve the reliability of achieving outcomes. As a general rule, what is measured is improved. This section focuses on improvement techniques and best practices for diabetes management and each of the ABCS measures within the context of EHR use. Although this guide focuses on treatment of heart disease and prevention of stroke and heart attack, these techniques can be applied to any condition. Now that you have pulled your ABCS or diabetes data, you can determine which, if any, of the measures require quality improvement efforts.

Many improvement projects begin with the goal of fixing a problem and proceed with a trial-and-error approach to achieving the goal. Along the way, the project team becomes frustrated, expends unnecessary resources, and often fails to find an effective solution. Instead of jumping from problem identification to proposed solutions, a clinic will enjoy more success in improvement if the employees understand the conditions or causes that led a clinic to perform the way it currently does. Success interventions can be designed when the effort is spent at the beginning of a project, building an understanding of the deeper reasons why a problem exists in the first place and the context in which improvement will occur. Workflow analysis, Gap analysis, and Actor analysis are techniques that can be used to analyze processes. Planning for improvement must then be a two-step process that entails diagnosing common system failures and identifying solutions that are most likely to address that failure in the work context surrounding it.

1. Diagnose Causes of System Failure

a) Measurement errors – It is possible that the measure was designed incorrectly or is not set up correctly on your system. EHR vendors are still fine-tuning these reports. Many vendors are open to troubleshooting the reports with their customers.

b) Documentation errors – These errors are common and are usually simple to correct. In this case the care is completed and not documented or documented incorrectly. One common error is documenting the care in a non-discrete field, such as the provider notes, instead of in a field that can be queried by the EHR system.

c) Clinical Errors – These errors happen with a missed care opportunity or when a clinic workflow issue arises and the care is not completed.

2. Identify Appropriate Process Redesign Strategies

You may already have a number of tools, strategies, and resources for improving processes in your setting. A straightforward and effective system improvement approach is "The Model for Improvement." Small changes are tested in PDSA (Plan-Do-Study-Act) cycles which inform a systemwide change. The Model for Improvement comprises four steps: 1) Setting the aim, or answering the question, 'What are we trying to accomplish?'; 2) Establishing measures, or answering the question, 'How will we know that a change has led to improvement?'; 3) Creating an overall plan for improvement or selecting change; and 4) Testing changes or evaluating results.[2]

[2] See Appendix B for more details on the Model for Improvement

How can the accuracy be improved? (Addressing Measurement and Documentation Errors) Every EHR is a little different in which fields trigger placement on reports. The EHR vendor should be contacted in circumstances where the obvious solutions have been addressed. Generally, reports are dependent on particular diagnostic and billing codes. Looking at the underlying codes is another way to troubleshoot measure reports. The codes for e-measures can be found here:

(A) Aspirin for those who need it – This information is usually pulled from either the patient's medication list or, in some cases, the patient's problem list. Keeping the medication list current is necessary to generate accurate reports. Example ICD-9 diagnosis codes for conditions where aspirin is indicated include:

414.01 – Coronary atherosclerosis of native coronary artery

414.2 – Chronic total occlusion of coronary artery

414.9 – Chronic ischemic heart disease, unspecified

V12.53 – Personal history of sudden cardiac arrest

433.10 – Occlusion and stenosis of precerebral arteries, carotid artery, without mention of infarction

(B) Blood pressure control – This information is pulled from the patient's vital sign fields and the problem list. The problem list must be up-to-date with correct and current diagnoses. Frequently used ICD-9 diagnosis codes for hypertension include:

401.0 – Hypertension, malignant

401.1 – Hypertension, benign

401.9 – Hypertension, unspecified

403.91 – Hypertension with renal disease, unspecified

403.91 – Hypertension with end stage renal disease, unspecified

(C) Cholesterol management – This information is pulled from the problem list and claims reporting data regarding labs or from a lab interface importing structured data. The problem list must be up-to-date with correct and current diagnoses. Frequently used ICD-9 diagnosis codes for hyperlipidemia include:

272.0 – Pure hypercholesterolemia

272.1 – Pure hyperglyceridemia

272.2 – Mixed hyperlipidemia

272.4 – Unspecified other hyperlipidemia

(S) Quitting smoking – This information will be pulled from the structured smoking status fields within your social or health histories. The problem list and medication list must be in a structured format.

Diabetes – The denominator information is usually pulled from a patient's problem list, with a diagnosis code of diabetes mellitus. Many of the control measures, including NQF# 0059, correlate the diagnosis with an HbA1c value that should be less than one year old. It is important to have the HbA1c lab value mapped appropriately for these measures to function. Frequently used ICD-9 diagnosis codes for diabetes mellitus include:

250.00 – Type II or unspecified type, not stated as uncontrolled

250.01 – Type I [juvenile type], not stated as uncontrolled

250.02 – Type II or unspecified type, uncontrolled

250.03 – Type I [juvenile type], uncontrolled

Best Practices for Health Care Providers (Addressing Clinical Errors)

In many EHR reporting systems, it is easy to drill down on the output report and find specific patients that did not show up in the numerator of the measure. Tags and reminders can be used with these patients so when the patient comes for the next visit, the agenda can be set to successfully complete the care steps needed. Below are suggested best practices around diabetes and the ABCS.

Treatment:

- Focus on diabetes and the ABCS with your patients.[3]
- Treat high blood pressure and cholesterol. Prioritize control of high blood pressure and diabetes management (HbA1c), which helps to prevent heart attack, stroke, and kidney failure.
- According to the U.S. Preventive Services Task Force (USPSTF)[4]:
    - There is good evidence that aspirin decreases the incidence of myocardial infarction in men and ischemic strokes in women. However, the USPSTF also found good evidence that aspirin increases the incidence of gastrointestinal bleeding and fair evidence that aspirin increases the incidence of hemorrhagic stroke. Aspirin therapy is indicated for secondary prevention with ischemic heart disease.
    - The use of aspirin for men ages 45 to 79 years is recommended when the potential benefit due to a reduction in myocardial infarctions outweighs the potential harm due to an increase in gastrointestinal hemorrhage.
    - The use of aspirin for women ages 55 to 79 years is recommended when the potential benefit of a reduction in ischemic strokes outweighs the potential harm due to an increase in gastrointestinal hemorrhage.

[3] See Appendix C for detailed treatment resources on the ABCS

[4] http://www.uspreventiveservicestaskforce.org/uspstf/uspsasmi.htm

- The optimum dose of aspirin for preventing cardiovascular events and stroke is unknown. Approximately 75 mg/d of aspirin, which is less than the standard 81 mg baby aspirin, seems to be as effective as higher dosages.

Self–management Education:

- Establish and discuss with patients their specific goals for treatment and the most effective ways that they can help control their risk factors for heart disease and stroke.
- Coach patients to develop heart-healthy habits, such as regular exercise and a diet rich in fresh fruits and vegetables, and stress reduction techniques.
- Ask patients about their smoking status and provide cessation support and medication when appropriate.
- Ask about barriers to medication adherence and find solutions.
- Help patients follow treatment instructions and activate staff to emphasize the importance of taking medications as prescribed.
- Reduce out-of-pocket costs for smoking cessation, blood pressure medications, cholesterol medications, and services.

System Processes:

- Use health information technology, such as electronic health records, patient portals, health maintenance, and decision support tools to improve the delivery of care and control of diabetes and the ABCS.
- Track and improve blood pressure control through health information technology and quality improvement techniques.
- Provide tools to show their progress and access to team members to help them succeed.

APPENDIX A – DEFINITIONS:

Diabetes

Diabetes is typically a chronic disease characterized by high blood glucose levels. Blood glucose is controlled at least in part by the activities of glucose and glucagon. The production of these hormones and the sensitivity of the cells to these hormones are correlated with blood sugar levels. There are a number of risk factors associated with diabetes, including obesity.

Heart Disease

Heart disease refers to several types of heart conditions. The most common type in the United States is coronary artery disease, which can cause heart attack, severe chest pain, heart failure, and irregular heartbeat. Several factors contribute to heart disease, including genetics, high blood pressure, and cholesterol, and lifestyle factors such as smoking, unhealthy diet, and lack of exercise.

Stroke

Stroke is a brain attack that occurs when blood flow to the brain becomes blocked. This can be caused either by a blood clot or by a burst blood vessel in or around the brain. Lack of blood flow during stroke can cause portions of the brain to become damaged, often beyond repair.

Cardiovascular Disease

Cardiovascular disease is a broad term for all diseases that affect the heart or blood vessels. This includes heart attack and stroke, as well as conditions such as high blood pressure, coronary artery disease, and aortic aneurism.

Ischemic Vascular Disease

Ischemic vascular disease is a condition characterized by the narrowing of blood vessels. It is a broad term that includes coronary artery disease (CAD) and peripheral vascular disease (PVD). Stroke, heart attack, and dementia are some of the possible outcomes of this disease.

APPENDIX B – THE MODEL FOR IMPROVEMENT:

Step 1: Setting the aim, or what are we trying to accomplish?

- State the aim clearly (SMART acronym)
- Include a numerical goal and time frame that require fundamental system change
- Set stretch goals – A "stretch" goal is one to reach for within a certain time
- Avoid aim drift – Once the aim has been set, the team needs to be careful not to back away from it deliberately or "drift" away from it unconsciously
- Be prepared to refocus the aim

Step 2: Establishing measures, or how will we know that a change is an improvement?

- Plot data over time
- Seek usefulness, not perfection
- Use sampling
- Integrate measurement into the daily routine
- Use qualitative and quantitative data

Step 3: Create an overall plan for improvement or selecting change.

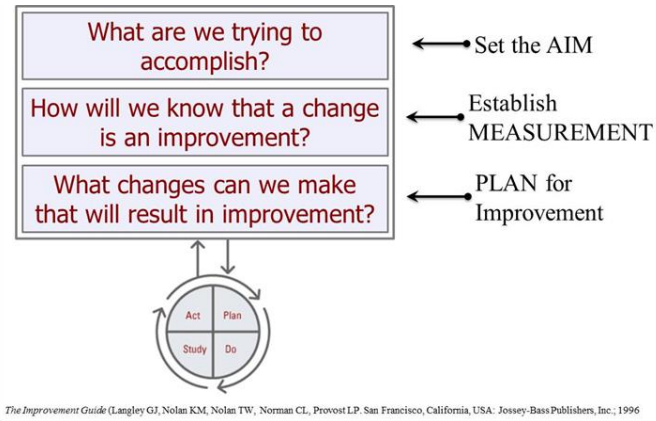
- Avoid "the usuial" responses – such as throwing more money and people at the problem
- Implement recommended practices guidelines
- Think processes and systems of work: simplify processes, reduce waste or redundancies, strengthen handoffs
- Think creatively
- Use new or existing technology appropriately
- Describe change (strategies)
- Predict outcome
- List steps needed
- Plan for collection of data

Resources

The following resources may be helpful in using the Model for Improvement:

- Institute for Healthcare Improvement website: http://www.ihi.org
- The Improvement Guide. Langley G.J., Nolan K.M., Nolan T.W., Norman C.L., Provost L.P. (2009). New York, NY: John Wiley and Sons.

The Improvement Guide is viewable online at http://books.google.com/. Type the title of the book into the search field to locate the most recent edition.



APPENDIX C – ABCS TREATMENT RESOURCES:

- **Aspirin**:
  - U.S. Preventive Services Task Force (USPSTF) – Aspirin for the Prevention of Cardiovascular Disease – http://tinyurl.com/aou2c6n
  - NEJM – Aspirin in Secondary Prevention of Cardiovascular Disease – http://tinyurl.com/ad4yt7b
  - Centers for Disease Control (CDC) – Recommendations for Aspirin for Prevention of Cardiovascular Disease – http://tinyurl.com/aljrych
  - PubMed.gov – Individual and Population Benefits of Daily Aspirin Therapy: a Proposal for Personalizing National Guidelines – http://tinyurl.com/agwdewm
  - Million Hearts – http://millionhearts.hhs.gov/
- **Blood Pressure Control**:
  - JNC7 Report – The 7th Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC7) – http://tinyurl.com/bajryta
  - What Blood Pressure Cuff Should We Use? – Dr. Stultz – University of Utah – http://tinyurl.com/aan8zas
  - Million Hearts Blood Pressure Toolkit – http://tinyurl.com/7sub3lq
  - NHLBI National Heart Lung and Blood Institute – http://www.nhlbi.nih.gov
  - Million Hearts – http://millionhearts.hhs.gov/
- **Cholesterol Management**:
  - NIH – Cholesterol Adult Treatment Panel ATP III Final Report – http://tinyurl.com/aeyhcvm
  - NIH – Cholesterol ATP Guidelines Executive Summary – http://tinyurl.com/b5qoahe
  - NIH – 10-Year Risk Calculator – http://tinyurl.com/lkk6c
  - National Cholesterol Education Program – NIH – http://www.nhlbi.nih.gov/about/ncep/
  - CDC – Cholesterol – http://www.cdc.gov/cholesterol/
  - Agency for Healthcare Research and Quality (AHRQ) – Treating High Cholesterol – http://tinyurl.com/al5t8gz
  - American Heart Association – Cholesterol – http://tinyurl.com/23dtxvo

- **Smoking Cessation:**
  - Integrating Tobacco Cessation into EHRs – AAFP – http://tinyurl.com/awcx7mo
  - The 5 As – Ask, Advise, Assess, Assist, Arrange – U.S. Public Health Service, U.S. Department of Health and Human Services, AHRQ – http://tinyurl.com/82ktphl
  - Medicare.gov – Coverage – http://tinyurl.com/b6v4x9e
  - CDC – Smoking Cessation materials – http://tinyurl.com/afx5dww
  - Tobacco Control Journal – Interventions to Increase Smoking Cessation at the Population Level: How much progress has been made in the last two decades? – http://tinyurl.com/a3r6x8l

APPENDIX D – MANUAL REGISTRY METHOD FOR CARDIAC MEASURES (ABCS) DATA IN ECW:

(This is an example and may need modification based on software version and reporting needs)

Get to Registry option in eCW

1) Log in
2) Click the **Registry** option in the left panel
3) Click the **Registry** button in the left panel
4) Set up denominator (date range, age, and limit diagnosis to Ischemic Vascular Disease)
5) Click the **Encounters** tab in the center panel
6) Enter the date range (generally two years previous to the end of the desired reporting period is what is chosen here)
7) Enter the appropriate facility
8) Check **Show Office Visits Only**
9) Click the **Run New** button
10) Click the **Demographics** option in the center panel
11) Use the drop-down menu to choose **Age Range** and enter 18 for the first number
12) Click the **Run Subset** button
13) Use the drop-down menu to choose Age = and enter 18 by end of previous reporting period (3/31, 6/30/,9/30,12/31)
14) Click the **Run Subset (NOT)** button
15) Click the **ICD** tab in the center panel
16) Place the following ICD codes in the box (these are diagnosis codes for Ischemic Vascular Disease – IVD): 410.11, 410.21, 410.31, 410.41, 410.51, 410.61, 410.71, 410.81, 410.91, 411.0, 411.1, 411.81, 411.89, 413.0, 413.1, 413.9, 414.00, 414.01, 414.02, 414.03, 414.04, 414.05, 414.06, 414.07, 414.8, 414.9, 429.2, 433.00, 433.01, 433.10, 433.11, 433.20, 433.21, 433.30, 433.31, 433.80, 433.81, 433.90, 433.91, 434.00, 434.01, 434.10, 434.11, 434.90, 434.91, 440.1, 440.20, 440.21, 440.22, 440.23, 440.24, 440.29, 440.4, 444.0, 444.1, 444.21, 444.22, 444.81, 444.89, 444.9, 445.01, 445.02, 445.81, 445.89
17) Choose the appropriate date range for the reporting period (quarterly, yearly)
18) Click the bubble for **Search in Problem List**
19) Click the **Run Subset** button (denominator – write this number down)
20) Run **BP numerator** to finish measure calculation
21) Click the **Vitals tab** in the center panel

22) Place a checkmark beside BP
23) In the first box place **00/00**
24) In the second box place **140/90**
25) Choose the appropriate date range for the reporting period (quarterly, yearly)
26) Click the **Migrate Vitals button** (this may take a while, click OK on the screens that appear)
27) When the last step is complete, click the **Run Subset** button (numerator – write this number down)
28) Run LDL measure to finish measure calculation
29) Repeat steps 4 through 18 (obtain denominator – write this number down)
30) Click the **Labs/DI** tab in the center panel
31) Click the **Sel** button to choose the LIPID PANEL WITH RATIOS lab
32) In the **Attributes** section, scroll down to **LDL-CHOLESTEROL**
33) Enter **100 for the upper limit** (second box beside LDL-CHOLESTEROL)
34) Choose the appropriate date range for the reporting period
35) Place a checkmark beside **Ignore Fasting Conditions**
36) Click the **Run Subset** button (numerator number – write this number down)
37) Run Aspirin measure
38) Repeat steps 4 through 18 (obtain denominator – write this number down)
39) Click the **RX** tab in the center panel
40) Click the **Sel** button to choose drugs
41) Type **asp** to look for **aspirin** (you can pull one from each category on the left, 81 or 325 mg)
42) Click the category on the left–hand side
43) Choose the strength in the top list to add it to the bottom list
44) Continue to do this until you have added all the aspirin dosages to the bottom list
45) Type **warf** to look for **Warfarin**
46) Click the category on the left-hand side
47) Choose the strength in the top list to add it to the bottom list (2.5, 5, 7 mg tablet)
48) Type **coum** to look for **Coumadin**
49) Choose the strength in the top list to add it to the bottom list (2.5, 5, 7 mg tablet)
50) Continue to follow these steps to add Plavix, Aggrenox, Pradaxa, Dabigitran
51) Click **OK** at bottom of box

52) Fill in the bubble beside **Prescribed As Of Date**
53) Choose the appropriate date range for the reporting period (quarterly, yearly)
54) Click the **Run Subset** button (you now have your numerator for the measure)
55) Run Smoking Cessation measure
56) Repeat steps 4 through 13 (obtain denominator – write this number down)
57) Click the **Structured Data** tab in the center panel
58) Click the ellipsis button (with 3 dots on it) beside **Field Name**
59) Choose **Are you a:** beside Social History/Smoking Status
60) Click the ellipsis button (3 dots) beside **Field Value**
61) Checkmark **Current Smoker**, click OK
62) Click the **Run Subset** button
63) Change the **Field Name** to Patient Counseled on Dangers of Tobacco Use beside Preventive Medicine, click OK
64) Choose the appropriate date range for the reporting period (quarterly, yearly)
65) Click the **Run Subset** button (numerator number – write this number down)